

**NONPOINT SOURCE SUMMARY PAGE**

**FY 05 CWA 319(h)**

1. **TITLE OF PROJECT:** A Community-based Water Quality Curriculum which Enhances Stakeholder Involvement in Watershed Protection Plan Initiatives: A Pilot Project
2. **PROJECT GOALS/OBJECTIVES:** This project will support the development of Watershed Protection Plans and promote a sustainable proactive approach to managing water quality at a local level. In achieving this goal, Texas Cooperative Extension will (1) Develop and deliver an educational curriculum which functions to increase local understanding of the forces which can adversely impact water resources and access to the knowledge and tools which can be employed to prevent and/or resolve them. (2) Enhance stakeholder involvement in the Watershed Protection Plan development process. (3) Develop a final report assessing the effectiveness of the Project including opportunities to expand Program delivery to other watersheds.
3. **PROJECT TASKS:** (1) Develop and/or adapt watershed education training materials and resources to create a science-based, community-responsive watershed education curriculum. (2) Work in concert with the TSSWCB to facilitate and support the development of a Watershed Protection Plan. (3) Develop a final report assessing the effectiveness of the Project. See detailed workplan below.
4. **MEASURES OF SUCCESS:** 1) As measured by surveys and pre/post evaluations, increased knowledge and understanding by individuals within the watershed including homeowners, agricultural producers, decision-makers, and community leaders regarding watershed principles, and appropriate BMPs and activities to address impairments caused by nonpoint source pollution; 2) As measured through follow-up surveys, increased implementation of appropriate residential and agricultural BMPs to address causes of nonpoint source pollution; 3) Increased participation in the Watershed Protection Plan development process as indicated by the number of individuals involved and willing to serve on management plan subcommittees.
5. **PROJECT TYPE:** Statewide ( ☐ ); Watershed Implementation/Education (X); Watershed Planning/Assessment (X); Watershed Protection ( ☐ )
6. **WATERBODY TYPE:** River ( ☐ ) Lake ( ☐ ) Wetland ( ☐ ) Ground Water ( ☐ ) Other (X)
7. **PROJECT LOCATION:** The pilot project will be conducted in a selected impaired watershed in the TSSWCB Wharton Regional Office Service Area. The project will be designed with the potential for future expansion to provide water quality outreach and Watershed Protection Plan development support throughout Texas.
8. **NPS MANAGEMENT PROGRAM REFERENCE:** State of Texas Agricultural/Silvicultural Nonpoint Source Management Program – Approved February 15, 2000.
9. **NPS ASSESSMENT REPORT STATUS:** Impaired ( ☐ ) Impacted ( ☐ ) Threatened ( ☐ )  
*A surface water segment assigned a category of 5b or 5c in the 2002 Water Quality Inventory and 303(d) List will be selected from the TSSWCB Wharton Regional Office Service Area.*
10. **KEY PROJECT ACTIVITIES:** Hire Staff (X); Monitoring ( ☐ ); Regulatory Assistance ( ☐ ); Technical Assistance ( ☐ ); Education (X); Implementation ( ☐ ); Demonstration ( ☐ ); Other ( ☐ )
11. **NPS MANAGEMENT PROGRAM ELEMENTS:** Milestones from the 1999 Texas Nonpoint Source Pollution Assessment Report and Management Program, which will be implemented include: (1) coordinating with Federal, State and Local Programs to most effectively address NPS pollution, and (2) committing to technology transfer, technical support, administrative support, and cooperation between agencies and programs for the prevention of NPS pollution.
12. **PROJECT COSTS:** Federal (\$358,041); Non-Federal Match (\$234,333); Total Project (\$592,374)
13. **PROJECT CO-MANAGEMENT:**  
Dr. Russell Persyn, Department of Biological and Agricultural Engineering  
Dr. Mark McFarland, Department of Soil and Crop Sciences  
Dr. Monty Dozier, Department of Soil and Crop Sciences
14. **PROJECT PERIOD:** Three years from the receipt of funding.

## **A Community-based Water Quality Curriculum which Enhances Stakeholder Involvement in Watershed Protection Plan Initiatives: A Pilot Project**

FY05 CWA Section 319(h)

### **WORKPLAN**

#### **Problem Need/Statement**

Nonpoint source pollution affects all Texas watersheds and frequently causes impaired water quality and loss of designated uses. Impacts include unsafe water supplies, degraded fisheries, constrained recreation, reservoir siltation, and impaired habitat. Causes of watershed impairment include changing land uses, increasing sediment loads, poor residential and agricultural land management, and loss of riparian vegetation. State and federal resource management agencies are now promoting a watershed approach to managing water quality. This involves assessing causes and sources of impairment, developing Watershed Protection Plans, encouraging local actions to protect and restore water quality, monitoring changes, and educating citizens to become watershed stewards. Watershed education is a critical component of achieving lasting water quality improvements. Extension outreach programs aimed at specific audiences are effective in transferring information and technologies to local stakeholders, improving decision-making and the use of management practices that diminish nonpoint source pollution.

Community-based approaches to watershed restoration and planning are currently promoted through the requirement that proposals to fund many projects must reference the project's role in a Watershed Protection Plan. The Watershed Protection Plan must include nine elements outlined by EPA to apply for 319 funding. Element 5 requires that an information/education component be used to enhance public understanding of the project and encourage early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented. Early, local involvement in development of a Watershed Protection Plan is crucial for the successful implementation of the plan.

Through its presence in nearly every Texas County, Texas Cooperative Extension (TCE) is uniquely situated to engage local stakeholders in watershed restoration and protection efforts including identification and implementation of appropriate BMPs to address nonpoint source pollution and the development of Watershed Protection Plans to guide long-term water quality efforts in the area. TCE will utilize its capacity to bring resources (ie. TAES, TWRI, etc.) of the Land-grant University system to bear on critical water resources issues in the pilot project area.

Watershed education efforts are most effectively provided when local involvement focuses education efforts on restoration of threatened or impaired designated uses in the area. Water bodies within a watershed are often affected by selected categories of nonpoint source pollution and communities are best served by watershed education that directly addresses the nonpoint pollution sources of greatest concern in the area. This Project will develop and deliver science-based, community-responsive watershed education to address local water quality impairments. These activities and associated coordination efforts will simultaneously facilitate and support public participation in the development of local Watershed Protection Plans being led by the TSSWCB.

The primary objectives of this project will be to (1) develop a watershed education curriculum which can be used to establish and sustain local watershed action groups created through the stakeholder facilitation process, (2) work in concert with the TSSWCB to engage stakeholders and support the development of Watershed Protection Plans through education outreach and technology transfer, and (3) develop a final assessment report of Program success including opportunities for potential expansion of the Program to other watersheds in the state.

#### **General Project Description**

Ultimately, successful management of a watershed and protection of its water resources depends upon engagement of the communities, businesses and individual citizens residing within that watershed. To achieve that engagement, these societal components must have a clear understanding of the forces which can adversely impact water resources and access to the knowledge and tools which can be employed to prevent and/or resolve them. The purpose of this

project will be to develop and deliver an educational curriculum which functions to support the TSSWCB's effort to prepare a Watershed Protection Plan in the target watershed.

This project also will partner with and build on the success and resources of the Southern Region Water Quality Coordination Project (funded through Cooperative State Research, Education and Extension Service, U. S. Department of Agriculture, National Integrated Water Quality Program Agreement No. 00-51130-9752). The Southern Region Coordination Project hosts a database website, developed by the Spatial Sciences Laboratory at Texas A&M University, which displays GIS data for Texas including watersheds, impaired water bodies, roads, rivers and streams, soils and land use. Supplemental data layers such as aerial photos, parcels, drainage patterns, subwatersheds, wetlands and elevation for the watershed of interest would be made available through the Southern Region Water Quality Database (<http://srwqis.tamu.edu/>). In addition, detailed analyses indicating potential risk areas would be illustrated through the ArcIMS viewer on the website. These data layers are extremely helpful in explaining and illustrating watershed hydrology principles at the local level. Maps generated by the website also will be helpful in the process of Watershed Protection Plan development. In addition, the website allows data such as GPS locations, monitoring information, and impervious surface area to be uploaded for detailed analysis with ArcIMS tools.

### **Tasks, Objectives, Schedules, and Estimated Costs**

**Task 1:** Develop and/or adapt watershed education training materials and resources to create a science-based, community-responsive watershed education curriculum.

**Costs:** \$252,300 (Federal), \$166,133 (State), \$418,433 (Total)

**Objective:** Develop and deliver an educational curriculum which functions to increase local understanding of the forces which can adversely impact water resources and access to the knowledge and tools which can be employed to prevent and/or resolve them. Increased understanding and promotion of appropriate BMPs and other restoration activities will be accomplished through education outreach and technology transfer. A multi disciplinary and multi-agency team will be assembled to support watershed education resource materials development.

**Subtask 1.1:** In collaboration with TWRI, organize a multi-disciplinary and multi-agency team to support watershed education resource materials development. The team will include personnel from the areas of production agriculture, agricultural engineering, forestry, horticulture, rural sociology, rangeland management and wildlife management. TCE will hire a Watershed Educator/Coordinator to assist with and coordinate organization and development of the water quality team and curriculum, and to assist with delivery of the water quality curriculum. (Start Date: Month 1; Completion Date: Month 6)

**Subtask 1.2:** Utilizing the team, develop a basic watershed education curriculum designed for a general audience to educate stakeholders about the nature and function of watersheds, potential impairments and strategies for watershed protection. Specific components or modules of the curriculum will include, but are not limited to, the following topics: (Start Date: Month 1; Completion Date: Month 12)

- Principles of Watershed Hydrology
- Primary Nonpoint Source Pollution Types
- Agricultural BMPs for Protecting Water Quality and Quantity
- Residential BMPs for Protecting Water Quality and Quantity
- Stream and Wetland Evaluation, Clean-Up and Restoration
- Well-head Identification and Protection
- Riparian Area Management for Protecting and Improving Water Quality
- Water Quality Testing and Monitoring
- Small Acreage Water Quality Stewardship
- Establishing and Working Through a Watershed Action Group
- Obtaining funds at the local level to engage water quality activities
- Regulatory structure, laws and policy impacting water

**Subtask 1.3:** Team members will develop and/or adapt more focused, resource specific education and training components which can be delivered in watersheds where those issues are identified as most significant. For example, the Master Forester, Master Gardener or Master Naturalist program(s) components may be of higher priority in some watersheds compared to others. In addition, unique local issues may require the development of new or substantively revised materials to effectively address local needs. (Start Date: Month 1; Completion Date: Month 12)

**Subtask 1.4:** In collaboration with TWRI, create a watershed education Website to serve as a clearinghouse for information and resources related to Watershed Protection Planning. TCE Watershed Educator/Coordinator will work with the TSSWCB Watershed Coordinator in linking or combining the watershed education Website with the Regional Watershed Coordination Website. (Start Date: Month 3; Completion Date: Month 36)

### **Deliverables**

- TCE Watershed Educator/Coordinator attend the National Watershed Training provided by EPA
- Basic Watershed Education Curriculum
- Watershed Education Curriculum Tailored to Selected Local Watershed Needs
- Watershed Education Website
- Quarterly Reports documenting progress, status and future activities

**Task 2:** Work in concert with the TSSWCB by providing educational information to facilitate and support the development of a Watershed Protection Plan.

**Costs:** \$86,680 (Federal), \$55,600 (State), \$142,280 (Total)

**Objective:** Enhance stakeholder involvement in the Watershed Protection Plan development process. The Project will promote and support the development of TSSWCB-led Watershed Protection Plans by providing training to the stakeholder group to enhance their knowledge of watershed management and water quality issues and coordinating, supporting and facilitating stakeholder participation in the Watershed Protection Plan process. Coordination will include organizing, hosting and facilitating local meetings.

**Subtask 2.1:** In collaboration with the TSSWCB Watershed Coordinator at the Wharton Regional Office and the TSSWCB Regional Watershed Steering Committee, select a watershed from the TSSWCB Wharton Regional Service Area with at least one impaired waterbody assigned a category of 5b or 5c from the 303(d) list to serve as the target watershed for the pilot study. (Start Date: Month 1; Completion Date: Month 3).

**Subtask 2.2:** In cooperation with the TSSWCB, TCE will coordinate, support and facilitate stakeholder participation in the Watershed Protection Plan process. Project personnel and County Extension faculty will work in concert with the TSSWCB Watershed Coordinator to organize, host and facilitate local meetings of the stakeholder group. (Start Date: Month 1; Completion Date: Month 18).

**Subtask 2.3:** Utilizing the watershed education curriculum, provide training to the stakeholder group to enhance their knowledge of watershed management and water quality issues and to facilitate effective participation in the watershed plan development process. (Start Date: Month 6; Completion Date: Month 30).

**Subtask 2.4:** Provide access to TCE personnel specializing in the appropriate disciplines necessary to provide technical support to the stakeholder group and/or the TSSWCB during Watershed Protection Plan development. (Start Date: Month 1; Completion Date: Month 30).

**Deliverables**

- Delineation of pilot project watershed boundary selected in cooperation with TSSWCB.
- Schedule, agenda, attendance list and minutes of stakeholder meetings.
- Press releases, newspaper articles, newsletters and public information statements.
- Schedule for watershed education trainings.

**Task 3:** Develop a final report assessing the effectiveness of the Project.

**Costs:** \$19,061 (Federal), \$12,600 (State), \$31,661 (Total)

**Objective:** Development of a report detailing the activities and evaluating the effectiveness of the Project.

**Subtask 3.1:** TCE, with assistance from TSSWCB, TWRI and TAES, will develop the final report which will include an evaluation of the watershed education curriculum to be developed as measured by:

- Pre/post training assessments of increased knowledge and understanding by individuals within the watershed regarding watershed principles and appropriate BMPs and other activities to address impairments caused by nonpoint source pollution.
- Surveys following training through the watershed education curriculum
- Assessment of the frequency of implementation of appropriate residential and agricultural BMPs to address causes of nonpoint source pollution.

The final report will examine potential increased participation in the Watershed Protection Plan development process as indicated by the number of individuals involved and willing to serve on management plan subcommittees and the number of proposals developed to support funding Watershed Protection Plan implementation priorities. TCE will rely on the direction of the TSSWCB Watershed Coordinator to facilitate and coordinate partnerships of stakeholders required for grant and funding opportunities.

The final report also will contain a summary of the effectiveness of the pilot project as an indicator of potential success of implementation of the Project state-wide. The report will also evaluate the feasibility of coordinating with other entities developing Watershed Protection Plans, such as TCEQ, River Authorities, etc. (Start Date: Month 24; Completion Date: Month 36).

**Coordination, Roles and Responsibilities:**

A Watershed Education Coordinator employed by TCE will be responsible for developing, adapting and tailoring water resource education materials to address local concerns, and for coordinating, facilitating and conducting watershed education trainings and Watershed Protection Plan meetings. The Texas Extension State Water Quality Coordinator will provide oversight for the project. Extension Water Quality Specialists will assist in program development and delivery. The Spatial Sciences Laboratory in the Department of Forestry at Texas A&M University will provide web support to make watershed education materials available through the internet and will acquire and post GIS/geo-referenced information to the Southern Region Water Quality Information Database at <http://srwqis.tamu.edu/> to augment and locally-tailor watershed education materials and Watershed Protection Plan maps.

The Watershed Coordinator at TSSWCB Regional Office in Wharton, Texas will be responsible for collaborating with the Watershed Education Coordinator in the pilot study area. The TSSWCB NPS Team Leader will provide oversight for the position.

In the event TMDL development is required, TCE Watershed Educator/Coordinator will serve as an educational resource to lead agency developing TMDL.

Additionally, TCE will utilize the expertise and coordination of TWRI to organize the multi-agency team, specialists support and publication resources.

Further, personnel with Texas Cooperative Extension including Specialists and County Extension Agents and personnel with the Texas Agricultural Experiment Station will provide educational materials when necessary for project activities.

Finally, Public participation is the focus of this project. The purpose of the project is to provide watershed education and technology transfer to address local water quality impairments and to increase public participation and support for the water quality management plan development and implementation process.

#### **Measures of Success:**

- As measured by surveys and pre/post evaluations, increased knowledge and understanding by individuals within the watershed including homeowners, agricultural producers, decision-makers, and community leaders regarding watershed principles, and appropriate BMPs and activities to address impairments caused by nonpoint source pollution;
- As measured through follow-up surveys, increased implementation of appropriate residential and agricultural BMPs to address causes of nonpoint source pollution;
- Increased participation in the Watershed Protection Plan development process as indicated by the number of individuals involved and willing to serve on management plan subcommittees.

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**Itemized Budget**

Category	Year 1	Year 2	Year 3	Year 1	Year 2	Year 3	TOTAL PROJECT
	Federal Funds			Non-Federal Match			
PERSONNEL							
Program Specialist	\$50,000	\$51,500	\$53,045	\$45,219	\$45,219	\$45,219	\$290,202
BENEFITS							
Program Specailist	\$12,360	\$12,594	\$12,835	\$10,056	\$10,056	\$10,035	\$67,936
TOTAL SALARY & BENEFITS	\$62,360	\$64,094	\$65,880	\$55,275	\$55,275	\$55,254	\$358,138
TRAVEL	\$3,000	\$4,000	\$3,000				\$10,000
SUPPLIES	\$2,000	\$2,000	\$2,000				\$6,000
OTHER DIRECT COSTS							
National Watershed Training (EPA)	\$5,000						\$5,000
Publication Costs	\$3,000	\$4,000	\$4,000		\$0	\$0	\$11,000
Specialist Support	\$40,000	\$25,000					\$65,000
Web Development	\$7,500	\$5,000	\$2,500				\$15,000
TOTAL OTHER DIRECT COSTS	\$55,500	\$34,000	\$6,500	\$0	\$0	\$0	\$96,000
EQUIPMENT (CAPITOL OUTLAY)							
CONTRACTUAL							
CONSTRUCTION							
TOTAL DIRECT	\$122,860	\$104,094	\$77,380	\$55,275	\$55,275	\$55,254	\$470,138
15% IDC	\$21,681	\$18,370	\$13,656	\$14,372	\$14,372	\$14,365	\$96,816
Unrecovered IDC				\$10,262	\$8,694	\$6,463	\$25,419
Total	\$144,541	\$122,464	\$91,036	\$79,909	\$78,341	\$76,083	\$592,374
Total Request	\$358,041			\$234,333			\$592,374
Match Percentage	60%			40%			